REMARKS

This application has been reviewed in light of the Office Action dated February 12, 2003. Claims 1, 6, 10, 15, 19-23, 26-32, 35-38, and 50-53 are presented for examination, and have been amended to define still more clearly what Applicants regard as their invention. Claims 4, 5, 7, 8, 13, 14, 16, 17, 24, 25, 33, 34, and 54 have been canceled, without prejudice or disclaimer of subject matter. Claims 1, 10, 19, 20, 29, and 38 are in independent form. Favorable reconsideration is requested.

Claims 1, 4-8, 10, 13-17, 19-38, and 50-54 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,915,250 (*Jain et al.*). Cancellation of claims 4, 5, 7, 8, 13, 14, 16, 17, 24, 25, 33, 34, and 54 renders their rejection moot.

As shown above, Applicants have amended independent claims 1, 10, 19, 20, 29, and 38 in terms that still more clearly define what they regard as their invention. Applicants submit that these amended independent claims, together with the remaining claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons.

The present invention is directed to an image search apparatus and method for searching an image database that stores a plurality of image data for a desired image. Search methods in conventional systems are classified generally into two methods. First, is a method of storing non-image information, such as keywords, and conducting a search based on such information. Second, is conducting a search, called a similar image search, on the basis of image feature amounts, such as luminance/color difference information, image frequency, histogram, and the like. When a handwritten illustration is used as a search criteria for a similar image

search in conventional systems, a desired image cannot be obtained unless an appropriate illustration is drawn.

The aspect of the present invention set forth in claim 1 is an image search apparatus for searching an image database for desired image data. The image database stores a plurality of image data in correspondence with image feature amounts for each of the image data. The image search apparatus comprises display means for displaying the plurality of image data as a search result, corresponding to an input search condition, obtained by a search of the image data from the image database. The apparatus also includes selection means for selecting image data designated by a user from the plurality of image data, image feature amount computing means for computing an image feature amount of the image data selected by the selection means, and image similarity computing means for computing image similarity on the basis of the image feature amount computed by the image feature amount computing means and the image feature amounts of the image data stored in the image database. That is, the image search apparatus displays a plurality of image data as a search result, corresponding to an input search condition, obtained by a search of image data from the image database. A similar image search is then performed using image data designated by a user from the plurality of image data (each of which is candidate image data of a search condition image). By virtue of this arrangement, an efficient similar image search can be executed where the user selects only image data from the plurality of image data in the display as a search condition, without having to draw an illustration of an image as a search condition.

The image search apparatus of claim 1 performs a two-step search process. In the first step, a plurality of candidate image data for searching desired image are searched from a

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database using a search condition. Then, in the second search step, desired image data is searched from the database using one candidate image data designated by the user from the plurality of candidate image data as a second search condition.

One important feature of claim 1 is displaying a plurality of image data as a search result, corresponding to an input search condition, obtained by a search of image data from the image database, and selecting image data designated by a user from the plurality of image data.

Jain et al. relates to visual information retrieval systems, where retrieval of stored visual objects is based on content similarity to a target visual object. *Jain et al.* provides a bitmap editor, part of the Query Canvas module 108, to express a query visually (image 182). The Query Canvas module 108 also serves as an input to the Image Analysis module 122 (Figure 1A). The Query Canvas module 108 allows a user to modify the image 182. For example, the user can modify the current texture of the image 182 to another texture, selected from the palette of textures 190, and/or modify from the current color to other colors defined by the color palette 188. Once modified, the image 182 is submitted as a query to the system. Nothing has been found in *Jain et al.* that would teach or suggest displaying a plurality of image data as a search result, corresponding to an input search condition, obtained by a search of image data from the image database, and selecting image data designated by a user from the plurality of image data, as recited in claim 1. Even if *Jain et al.* be deemed to disclose a search technique corresponding to the second search step of claim 1, *Jain et al.* fails to disclose displaying a plurality of image data as search results obtained by a search of image data from the image database. Nor does *Jain*

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et al. disclose selecting image data from the plurality of image data to serve as the search condition for a further search of the image database.

For at least the above reasons, claim 1 is believed clearly to be allowable over *Jain et al.*

Independent claims 10 and 19 are method and computer readable memory claims, respectively, corresponding to apparatus claim 1, and are believed to be patentable for at least the same reasons as discussed above in connection with claim 1.

The aspect of the present invention set forth in claim 20 is an image search apparatus for searching an image database for desired image data. The image database stores a plurality of image data in correspondence with image feature amounts for each of the image data. The image search apparatus comprises display means for displaying a plurality of image data searched on the basis of input handwritten information, selection means for selecting color information of image data designated by a user from the plurality of image data, and image feature amount computing means for computing an image feature amount of an image drawn in a drawing area, which includes having color information selected by the selection means. The image search apparatus also includes image similarity computing means for computing image similarity on the basis of the image feature amount computed by the image feature amount computing means, and the image feature amounts of the image data stored in the image database. That is, the image search apparatus displays a plurality of image data searched on the basis of input handwritten information. A similar image search is then performed using an image drawn in a drawing area, which includes having color information of the image data selected by a user from the plurality of image data. To set or change the color information of an image as a search

condition, the user designates a position of a desired color of the image data from the plurality of image data that is displayed. Accordingly, color information of an image as a search condition for a similar image search process can be designated easily by the user having only to select the color information of the image data designated from the displayed plurality of image data. Thus, the user does not have to use a complicated color designation tool using R, G, and B values.

Similar to the image search apparatus of claim 1, the image search apparatus of claim 20 performs a two-step search process. In the first step, a search for a desired image is performed using input handwritten information as a first search condition, resulting in a display of a plurality of image data. In the second search step, desired image data is searched from the image database using one candidate image data, as a second search condition, designated by a user from the displayed plurality of image data.

One important feature of claim 20 is displaying a plurality of image data searched on the basis of input handwritten information, and selecting color information of image data designated by a user from the plurality of image data.

For reasons substantially similar to those discussed above in connection with claim 1, nothing has been found in *Jain et al.* that would teach or suggest displaying a plurality of image data searched on the basis of input handwritten information, and selecting color information of image data designated by a user from the plurality of image data, as recited in claim 20.

Independent claims 29 and 38 are method and computer readable memory claims, respectively, corresponding to apparatus claim 20, and are believed to be patentable for at least the same reasons as discussed above in connection with claim 20.

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The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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